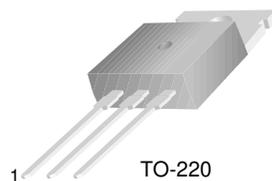


## BDW94/A/B/C

### Power Linear and Switching Applications

- Power Darlington TR
- Complement to BDW93, BDW93A, BDW93B and BDW93C respectively



TO-220  
1.Base 2.Collector 3.Emitter

### PNP Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

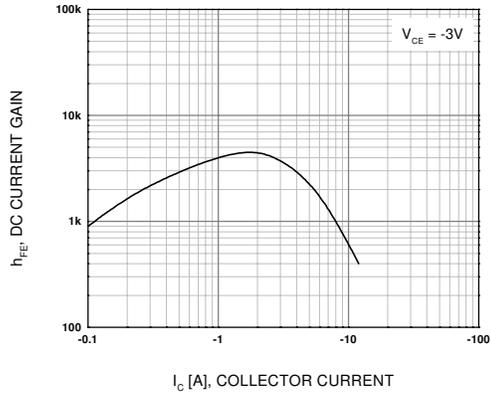
Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage		
	: BDW94	- 45	V
	: BDW94A	- 60	V
	: BDW94B	- 80	V
	: BDW94C	- 100	V
$V_{CEO}$	Collector-Emitter Voltage		
	: BDW94	- 45	V
	: BDW94A	- 60	V
	: BDW94B	- 80	V
	: BDW94C	- 100	V
$I_C$	Collector Current (DC)	- 12	A
$I_{CP}$	*Collector Current (Pulse)	- 15	A
$I_B$	Base Current	- 0.2	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	80	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

**Electrical Characteristics**  $T_C=25^\circ\text{C}$  unless otherwise noted

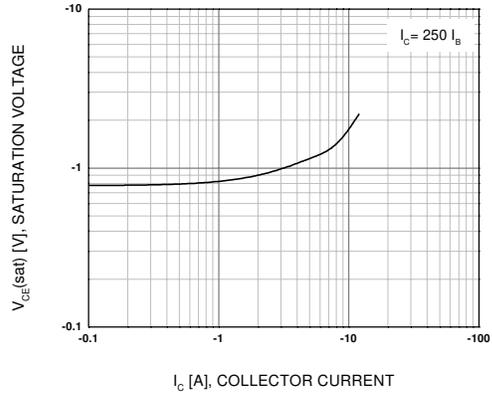
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units		
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = -100\text{mA}, I_B = 0$				V		
	: BDW94						- 45	
	: BDW94A						- 60	
	: BDW94B						- 80	
	: BDW94C	- 100						
$I_{CBO}$	Collector Cut-off Current					$\mu\text{A}$		
	: BDW94						$V_{CB} = -45\text{V}, I_E = 0$	- 100
	: BDW94A						$V_{CB} = -60\text{V}, I_E = 0$	- 100
	: BDW94B						$V_{CB} = -80\text{V}, I_E = 0$	- 100
	: BDW94C	$V_{CB} = -100\text{V}, I_E = 0$	- 100					
$I_{CEO}$	Collector Cut-off Current					mA		
	: BDW94						$V_{CE} = -45\text{V}, I_B = 0$	- 1
	: BDW94A						$V_{CE} = -60\text{V}, I_B = 0$	- 1
	: BDW94B						$V_{CE} = -80\text{V}, I_B = 0$	- 1
	: BDW94C	$V_{CE} = -100\text{V}, I_B = 0$	- 1					
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$			- 2	mA		
$h_{FE}$	* DC Current Gain	$V_{CE} = -3\text{V}, I_C = -3\text{A}$	1000		20000			
		$V_{CE} = -3\text{V}, I_C = -5\text{A}$	750					
		$V_{CE} = -3\text{V}, I_C = -10\text{A}$	100					
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -5\text{A}, I_B = -20\text{mA}$			- 2	V		
		$I_C = -10\text{A}, I_B = -100\text{mA}$			- 3	V		
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = -5\text{A}, I_B = -20\text{mA}$			- 2.5	V		
		$I_C = -10\text{A}, I_B = -100\text{mA}$			- 4	V		
$V_F$	* Parallel Diode Forward Voltage	$I_F = -5\text{A}$		- 1.3	- 2	V		
		$I_F = -10\text{A}$		- 1.8	- 4	V		

\* Pulse Test: PW=300 $\mu\text{s}$ , duty Cycle =1.5% Pulsed

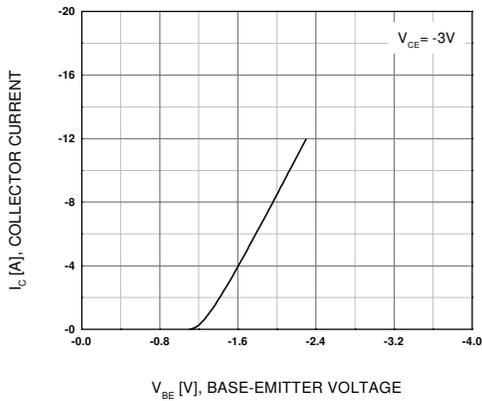
# Typical Characteristics



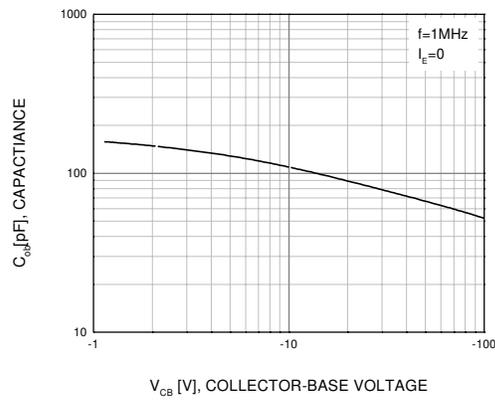
**Figure 1. DC Current Gain**



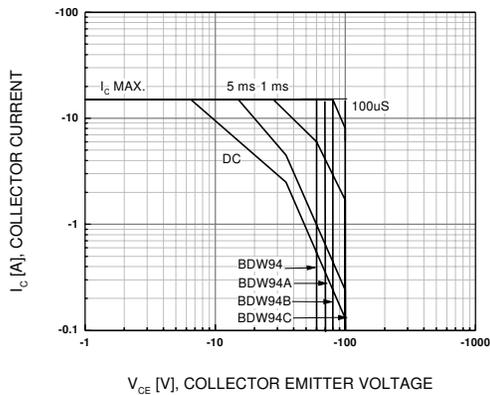
**Figure 2. Collector-Emitter Saturation Voltage**



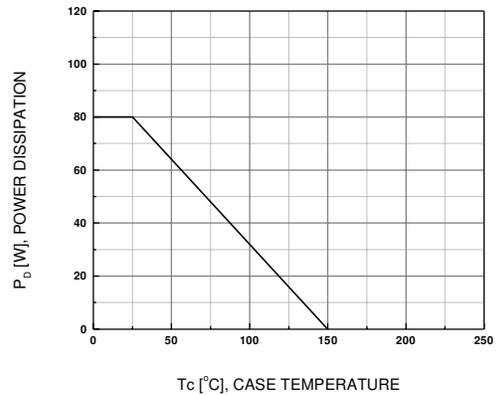
**Figure 3. Base-Emitter On Voltage**



**Figure 4. Output Capacitance**



**Figure 5. Safe Operating Area**

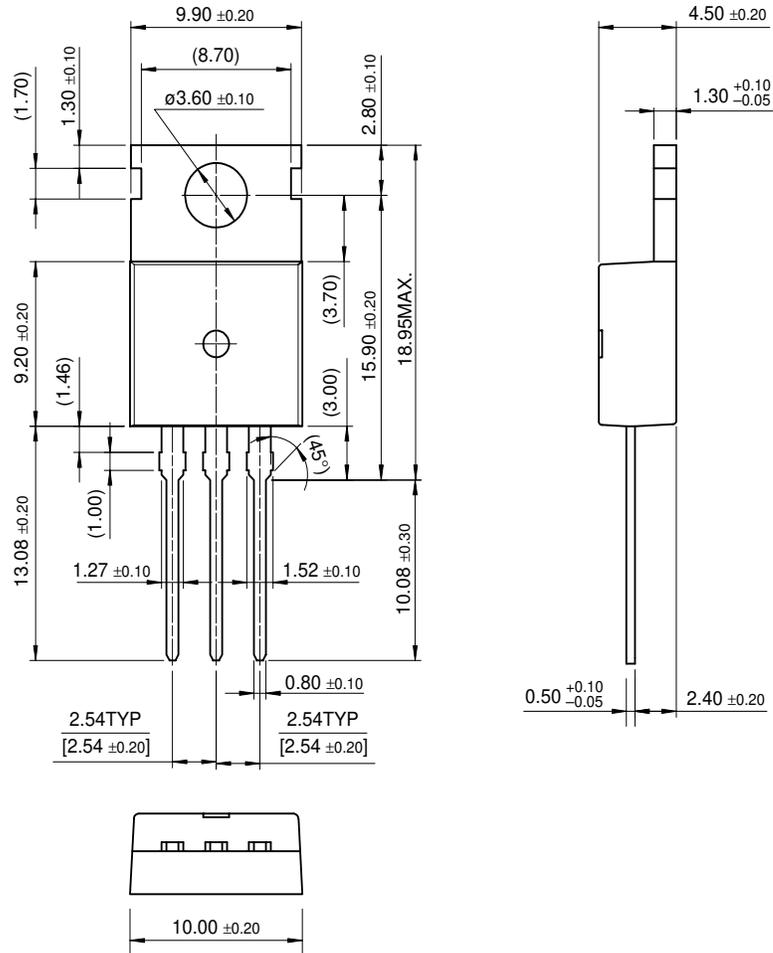


**Figure 6. Power Derating**

# Package Dimensions

BDW94/A/B/C

## TO-220



Dimensions in Millimeters

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CROSSVOLT™	POP™	UHC™
E <sup>2</sup> CMOS™	PowerTrench®	VCX™
FACT™	QFET™	
FACT Quiet Series™	QS™	
FAST®	Quiet Series™	
FASTr™	SuperSOT™-3	
GTO™	SuperSOT™-6	

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